MicroBDM12XG™

XGATE-compatible Background Debug Pod

PRODUCT FEATURES:

- low-cost BDM pod for working with most HC12, 9S12, and 9S12X targets-- supports XGATE
- works with 3-Volt and 5-Volt targets
- enables you to use Freescale D-Bug12 commands on target board
- supports hardware and software breakpoints in target
- RS232 interface to PC (or any platform with terminal emulation capability)
- 10-pin ribbon cable, compatible with virtually all targets
- no power supply required-- draws power from target board
- housed in a robust plastic enclosure for maximum reliability
- includes power and activity indicator LEDs
- based on a 9S12 dual-voltage MCU running a special version of D-Bug12
- supports baudrates up to 115K
- compatible with NoICE12 debugger
- supplied with serial cable and CD

Overview

MicroBDM12XG enables you to start working with Freescale's XGATE-based processor family, 9S12X. Based on Freescale's well-known D-Bug12 debug/monitor firmware, this pod offers advanced features for developing and debugging your firmware on your target hardware.

Here's how to use MicroBDM12XG:

Just connect the supplied ribbon cable to the target board's "BDM IN" connector. The target board could be any Adapt board, or any other 'HC12, 9S12, or 9S12X board that has a 6- or 10-pin BDM interface connector (except 9S12NE64). (Note: if your target board has a 6-pin BDM connector, just line up pin 1 with the ribbon cable. Our 10-pin connector is a superset of the standard 6-pin BDM specification.)

The host for the BDM Pod can be any type of computer running a terminal program. The BDM pod will receive its 5V/3V operating power from the target board through the ribbon cable. A couple of suggested Windows terminal programs are TeraTerm and Hyperterminal.

The big advantage of using a BDM pod is that it frees up all of the target board's memory for your application, while still offering you debugging capability. You can examine memory and registers, disassemble a memory range, set breakpoints, and do tracing in the target board's on-chip memory, among other things.

What's inside the box:

MicroBDM12XG is a minimal 9S12 board, running a special version of Freescale's D-Bug 12. The board contains an MCU, a crystal, an RS232 interface circuit, and a few support components, all mounted on a small board less than 2 inches square. A 10-pin ribbon cable is attached to one edge, a 9-pin D-sub connector is on the opposite edge, and the whole assembly is housed in a small plastic box. A 9-pin serial cable is included for the PC serial port interface. If you need USB, use a USB-to-Comport adapter, such as our #USB2COM.

Firmware Updates:

If D-Bug12 ever needs to be updated, it can be done using another BDM pod . By opening the box, applying a DC voltage (5 to 9V, nominal) to the power connector on the circuit board, and moving two jumpers to make the ribbon cable function as BDM IN, the board becomes a target, and Flash can be erased and re-programmed as needed.

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Command List:

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ASM <Address>  Single line assembler/disassembler
   <CR>        Disassemble next instruction
   <.>         Exit assembly/disassembly
BAUD <baudrate> [;t]  Set communications rate for the terminal
BDMDB  Enter the BDM command debugger
BF <StartAddress> <EndAddress> [<data>] [;nv]  Fill memory with data
BR [<Address>]  Set/Display breakpoints
BS <StartAddress> <EndAddress> '<String>' | <Data8> [<Data8>]  Block Search
BULK  Erase entire on-chip EEPROM contents
CALL [<Address>]  Call user subroutine at <Address>
DEVICE [<DevName>]  display/select target device
EEBASE <Address>  Set base address of on-chip EEPROM
FBULK [;np]  Erase entire target FLASH contents
FLOAD [<AddressOffset> | ;b] [;np] [;nf]  Load S-Records into target FLASH
G [<Address>]  Begin/continue execution of user code
GLOAD [<AddressOffset>]  Load S-Records into Global memory
GMD <StartAddress23> [<EndAddress23>]  Global Memory Display Bytes
GT <Address>  Set temporary breakpoint at <Address> & execute user code
HELP  Display D-Bug12 command summary
LOAD [[<AddressOffset>] [;f]] | [;b]  Load S-Records into memory
MD <StartAddress> [<EndAddress>]  Memory Display Bytes
MDW <StartAddress> [<EndAddress>]  Memory Display Words
MM <StartAddress>   Modify Memory Bytes
  <CR>            Examine/Modify next location
  </> or <=>      Examine/Modify same location
  <^> or <->      Examine/Modify previous location
  <.>             Exit Modify Memory command
MMW <StartAddress>  Modify Memory Words (same subcommands as MM)
MOVE <StartAddress> <EndAddress> <DestAddress> Move a block of memory
NOBR [<address>]  Remove One/All Breakpoint(s)
PCALL [<Address>]  Call user subroutine in expanded memory at <Address>
RD  Display CPU registers
REGBASE <Address>  Set base address of I/O registers
RESET  Reset target CPU
RM  Modify CPU Register Contents
SO  Step Over subroutine calls
STOP  Stop target CPU
T  [<count>]  Trace <count> instructions
TCONFIG  [<Address>=<Data8>] | [DLY=<mSDelay>] | NONE  Configure Target Device
UPLOAD  <StartAddress> <EndAddress> [;f] [;<SRecSize>]  S-Record Memory display
USEHBR  [ON | OFF]  Use Hardware/Software Breakpoints
VER  Display D-Bug12's Version Number
VERF  [[<AddressOffset>] [;f]] | [;b]  Verify S-Records against memory contents
<Register Name> <Register Value>  Set register contents
      Register Names: PC, SP, X, Y, A, B, D, PP
      CCR Status Bits: S, XM, H, IM, N, Z, V, C
      XGATE Register Names: XPC, R1, R2, R3, R4, R5, R6, R7, XCCR
XASM  <Address>  XGATE Single line assembler/disassembler
   <CR>        Disassemble next instruction
   <.>         Exit assembly/disassembly
XG [<Address>]  Begin/continue execution of XGate code
XRD  Display XGATE CPU registers
XRM  Modify XGATE Register Contents
XSTOP  Place the XGate CPU into debug mode
XT  [<count>]  Trace <count> XGATE instructions
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Chips Supported:

DP256 - MC9S12DP256, MC9S12DT256, MC9S12DJ256, MC9S12DG256, MC9S12A256	S12DB128 - MC9S12DT128, MC9S12DG128, MC9S12DJ128, MC9S12DB128, MC9S12A128
S12H256 - MC9S12H256	S12DJ64 - MC9S12DJ64, MC9S12D64, MC9S12A64
912D60 - MC68HC912D60	S12DP512 - MC9S12DP512, MC9S12DT512, MC9S12DJ512, MC9S12A512
912B32 - MC68HC912B32, MC68HC912BC32, MC68HC912BD32	S12XDP512 - MC9S12XDP512
DA128 - MC68HC912DA128, MC68HC912DG128	S12E128 - MC9S12E128
DT128A - MC68HC912DT128A, MC68HC912DG128A	S12C32 - MC9S12C32
912D60A - MC68HC912D60A	S12C128 - MC9S12C128
GA32 - MC68HC912GA32	S12KG128 - MC9S12KG128
KD128 - MC68HC912KD128	S12UF32 - MC9S12UF32
	812A4 - MC68HC812A4

Order Codes-
BDM pod: *UBDM12XG*
Optional USB ComPort Adapter: *USB2COM*